REMARKS

Claims 1-20 are pending in the present application. Claims 1 and 7-9 were amended, and claims 11-20 were added. Reconsideration of the claims is respectfully requested.

Applicants have submitted proposed a replacement drawing for Figure 1 which include reference signs 105 and 143 mentioned in the description as requested by the examiner.

I. 35 U.S.C. § 112, First Paragraph

The examiner has objected to the specification under 35 U.S.C. § 112, first paragraph, as failing to adequately teach how to make and/or use the invention in claim 4. Additionally, the examiner rejected the claims under the same reasons. This rejection is respectfully traversed.

The examiner states that claim 4 "contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. There is no basis in the specification that the new component may be a media player". (*Office Action*, page 2). To the contrary, there is adequate description in the specification that the new component may be a media player. For example, page 3, lines 7-11 of the specification reads as follows:

> The method comprises connecting a new physical component to a section of the library. Examples of new components include additional robots, storage cell arrays, media players, as well as connecting a second adjacent library by means of a pass- through mechanism.

Furthermore, page 5, line 4 to page 6, line 17 read as follows:

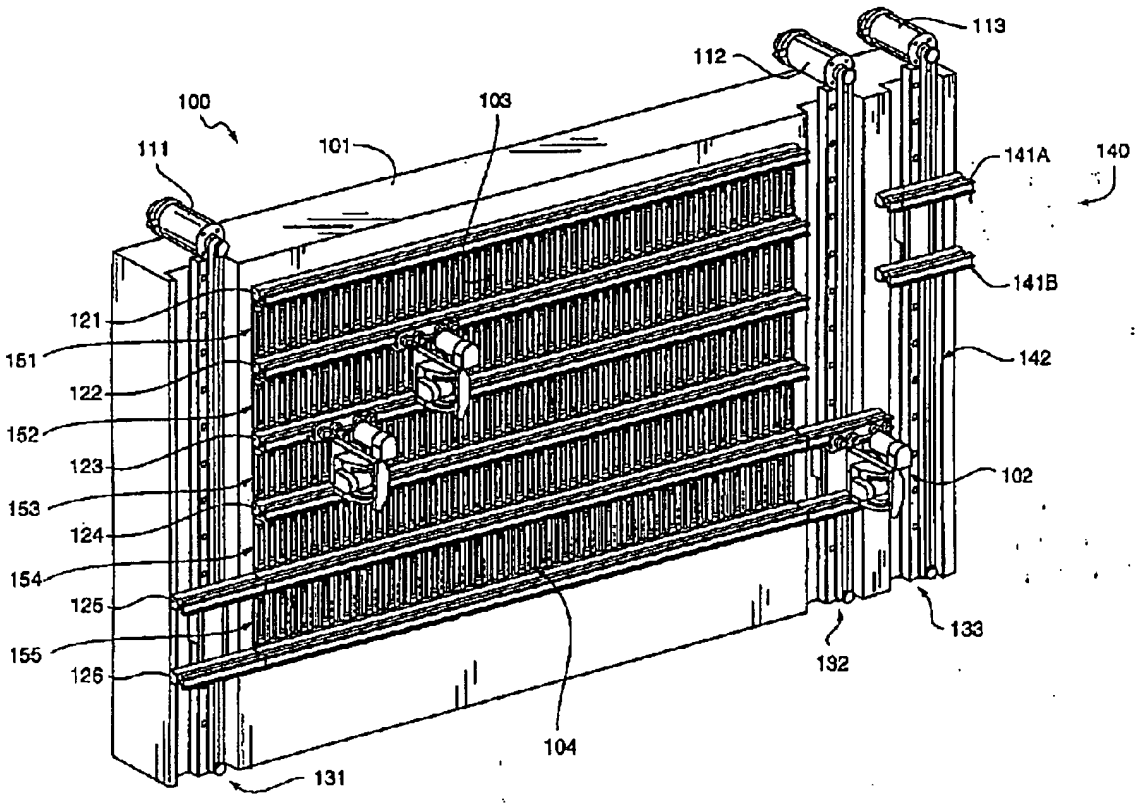
> The architecture of the present automated library array **100** is illustrated in **Figure 1** and contains the multiple independent robots **102** to enable the library array **100** to concurrently manipulate multiple media cartridges **105**. The library array **100** comprises a two-dimensional array of media cartridge storage cells **103** and media cartridge players **104** that are mounted in a frame **101**. A system of rails **121-126** is used to guide robotic pods **102** through all of the locations in the array, which eliminates the need for any steering or guide mechanisms on board the robotic pods **102**, resulting in a reduction in the mass of the robotic pods **102**. The rail

system **121-126** also constrains the movement of the robotic pods **102** into horizontal and vertical movements, thereby simplifying the control algorithms for collision avoidance that are required by a typical random moveable object handling system based on horizontal, vertical and diagonal degrees of freedom. The robotic pods **102** contain a moveable carriage that is capable of transporting robotic components, such as media cartridge pickers, bar code reading devices, and other task oriented sub-units, on the storage library rail system.

As shown in **Figure 1**, the frame **101** is designed to receive a plurality of rows **151-154** of media cartridge storage cells **103**, each of which is designed to house a single media cartridge **105**. The media cartridge players **104** are shown in an arbitrary location in a horizontal row **155** at the bottom of the frame **101**, although the library array **100** can incorporate media cartridge players **104** at any location in the frame **101** to optimize performance. The robotic pods **102** are attached to the frame **101** via horizontal guide rails **121-126**, which serve to frame the media cartridge storage cells **103** and media cartridge players **104** on the top and bottom sides thereof. **Figure 1** shows an array of media storage cells 103 fully populated with media cartridges **105** of any arbitrary type. The robotic pod guide rails **121-126** provide support of the robotic pods **102** in the vertical direction to oppose the force of gravity, and they also provide a meshing surface of suitable design to impart traction in the horizontal direction for motive transport of the robotic pods **102**. The robotic pods **102** each incorporate a drive means for propulsion in the horizontal direction along the guide rails **121**.

These passages in the specification teach that a storage library may include one or more media players. For example, page 5, lines 8-11 recite, "the library array **100** comprises a two-dimensional array of media cartridge storage cells **103** and media cartridge players **104** that are mounted in a frame **101**". As one of ordinary skill in the art would realize, the media cartridge players 104 referred to in the specification may tape drives. In fact, the background of the present invention states, "scalable library systems typically incorporate additional robotic mechanisms and related electromagnetic hardware to increase the size of a system" (page 1, lines 20-22). Tape drives may be representative of the electromagnetic hardware.

Moreover, Figure 1, as shown below, illustrates rows of media players:



As can be seen, media cartridge players 104 are tape drives mounted into the frame of the library. Thus, as a new component may be a media player, as described in the specification in a manner that enables one of ordinary skill in the art to make or use the invention, the objection of the specification under 35 U.S.C. § 112, first paragraph has been overcome.

II. 35 U.S.C. § 112, Second Paragraph

The examiner has rejected claims 7-9 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter, which applicants regard as the invention. Specifically, the examiner stated:

> In claims 7 and 9, --at least one-- should be inserted before "picker".
> In claim 8, "area" should be –zone--. (*Office Action*, page 3).

As claims 7-9 have been amended to comply with the examiner's request, applicants' submit that the rejection of claims 7-9 under 35 U.S.C. § 112, second paragraph is no longer applicable.

III. 35 U.S.C. § 103, Obviousness, claims 1-10

The examiner has rejected claims 1-10 under 35 U.S.C. § 103(a) as being unpatentable over *Dang et al.*, (US Patent No. 5,663,938). This rejection is respectfully traversed.

With regard to claims 1-10, the examiner states:

> Dang et al show a data storage library containing modular receptacles and pickers which can be connected together and added in any combination to scale the library as desired, wherein the library can continue to operate in the event of failure of any component. Although not explicitly stated, it is considered inherent that the level of sophistication of the apparatus is such that any new component would be integrated "by auditing the content and function" thereof, absent any further limitations.
>
> Although the modules are described as being easy to service upon failure thereof, Dang et al do not explicitly state that the library continues to operate during connection of a new component. However, since the library does continue to operate when one or more modules fail, it would have been obvious for one of ordinary skill in the art at the time of the invention to have modified the operating method of the Dang et al apparatus such that it would continue to operate not only in the event of failure of a component, but also during the actual servicing/replacement thereof, which would be equivalent to connection of a new component, as this would simply be a logical extension of the concept espoused by Dang et al (i.e., minimizing downtime), the incorporation of which would neither require undue experimentation nor produce unexpected results.

(*Office Action*, dated October 8, 2003, page 4). Amended independent claim 1 of the present invention, which is representative of independent claim 11, reads as follows:

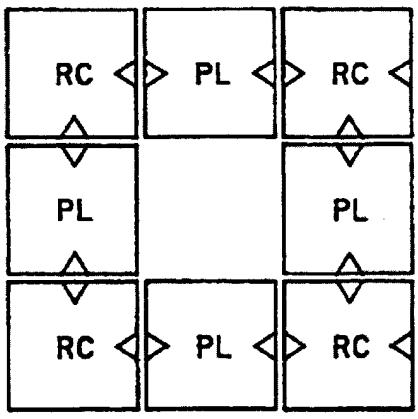
> 1. A method for scaling a media storage library, wherein the library comprises a plurality of media storage cells and at least one media picker robot, the method comprising:
>
> connecting a new physical component to a section of the library, wherein tracks of the library and the new physical component are joined to form joined tracks, and wherein the joined tracks allow the at least one media picker robot access to each media storage cell in the library and the new physical component ; and
>
> integrating the new physical component into the function of the library by auditing the content and function of the new physical component;
>
> wherein the library maintains current operation during the connection and functional integration of the new physical component.

The examiner bears the burden of establishing a *prima facie* case of obviousness based on the prior art when rejecting claims under 35 U.S.C. § 103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). For an invention to be prima facie obvious, the prior art must teach or suggest all claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Dang discloses the following:

> The present invention provides a data storage library which can be made and installed in modular form. This has been accomplished by providing a plurality of receptacle modules for storing recording media and a plurality of picker modules for transporting the recording media. The receptacle modules and the picker modules are arranged alternately in a side-by side relationship (checkerboard fashion) in a closed loop planar array. Each of the receptacle modules has a plurality of open-ended receptacles which are arranged one above the other in a column which extends perpendicular to the planar array. Each picker module has at least one picker which reciprocates vertically in a respective column opposite the open ends of the receptacles for transporting recording media therebetween. (*Dang*, col. 2, lines 19-31.)

As can be seen, *Dang* is directed towards a data storage library that includes a plurality of receptacle modules for storing and recording media and a plurality of picker modules for transporting the recording media. The receptacle modules and the picker modules are arranged alternately side by side in a closed loop planar array, as illustrated in Figure 18B:



Each receptacle module has a plurality of open ended receptacles (RC), through which a picker module (PL) may transport recording media therebetween. (*Dang*, col. 2, lines 25-

31). In addition, Figure 2 provides a schematic illustration of the *Dang* system:

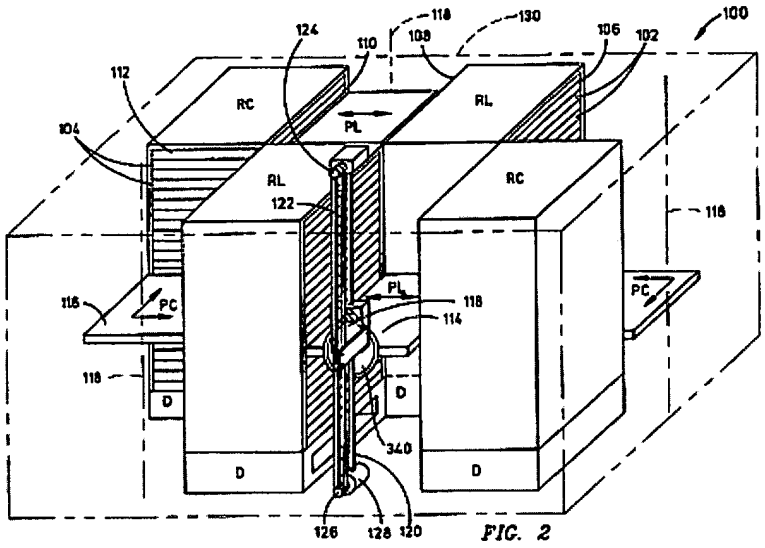


FIG. 2

As Figure 2 shows, the receptacle modules (RL and RC) and the picker modules (PL and PC) are arranged alternately side by side in a closed loop planar array. Accordingly, the *Dang* arrangement is a receptacle module which is adjacent to a picker module, which is adjacent to a receptacle module et cetera, until a complete loop is formed (*Dang*, col. 5, lines 8-13). This arrangement is referred to in *Dang* as a "checkerboard" (*Dang*, col. 5, line 25-26). Thus, as the receptacle modules and the picker modules are arranged in a checkerboard fashion, each receptacle module may be accessed by adjacent picker modules, and likewise, each picker module may access only adjacent receptacle modules.

Although *Dang* teaches an expandable library system, wherein additional receptacle modules (new components) may be added to the system, *Dang* does not teach or suggest the feature of joining tracks of the library and the new component, wherein the joined tracks allow the at least one media picker robot access to each media storage cell in the library and the new component, as recited in claim 1 of the present invention. Rather, *Dang* teaches robot pickers that may access only adjacent receptacle modules. As evident from Figure 18B, the receptacle modules and picker modules are arranged in checkerboard fashion. The picker modules are able to access only the adjacent receptacle modules. Thus, when a receptacle module is added to the system, an additional picker mechanism must also be added to the *Dang* system in order to conform to the

checkerboard scheme (*Dang*, col. 11, lines 50-55), since *Dang* teaches a checkerboard data storage library arrangement having a receptacle module adjacent to a picker module, which is adjacent to a receptacle module et cetera, wherein a complete loop is formed (*Dang*, col. 5, lines 8-13). Furthermore, the picker mechanisms in *Dang* are essentially stationary, since a picker mechanism only accesses the adjacent receptacle modules.

In contrast, the present invention allows a robot picker to access each of the receptacles in the library. Claim 1 recites joining the tracks of the existing library and the new component, so that a robot picker may cross the boundary from the existing library to the new component. In this manner, a robot picker may access each receptacle in the integrated system. Thus, in contrast with *Dang*, the robot pickers in the present invention are not stationary, nor are they limited to accessing only adjacent receptacles.

Furthermore, *Dang* does not teach the problem or its source. The examiner admits that *Dang* does not state that the library continues to operate during the connection of a new component (*Office Action*, page 4). The examiner asserts, however, that it would obvious to modify *Dang* to include the additional feature of having the library maintain current operation during the connection and functional integration of the new component, and thereby achieve the present invention. The present invention recognizes the problem of having the library continue to operate during the connection of a new component. In contrast, *Dang* is directed toward a data storage library arrangement that facilitates simpler library expansion and assures library operation even though one or two picker modules fail, rather than providing an expandable library system that continues normal operations during the addition of a new component. Thus, although both *Dang* and the present invention minimize system downtime, *Dang* is focused on providing system redundancy, while the present invention is directed towards providing a seamless integration of a new component. One of ordinary skill in the art would therefore not be motivated to combine or modify the references in the manner required to form the solution disclosed in the present invention.

Moreover, *Dang* teaches away from the presently claimed invention since the reference directs one to add additional picker modules when expanding the library system (each new receptacle requires an adjacent picker module), rather than joining the tracks of the existing library and the new component to allow an existing robot picker to move

within the integrated system. *See In re Hedges*, 228 U.S.P.Q. 685 (Fed. Cir. 1986). Thus, one of ordinary skill in the art would not be motivated from the references make the changes necessary to derive the present invention from the reference teachings.

If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Claims 2-10 are dependent claims that depend on independent claim 1, and claims 12-20 are dependent claims that depend on independent claim 11. Applicants have already demonstrated claims 1 and 11 to be in condition for allowance. Applicants respectfully submit that claims 2-10 and 12-20 are also allowable, at least by virtue of their dependency on an allowable claim.

Therefore, the rejection of claims 1-20 under 35 U.S.C. § 103 has been overcome.

IV. Conclusion

It is respectfully urged that the subject application is patentable over the cited reference and is now in condition for allowance.

The examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

DATE: 1/7/04

Respectfully submitted,

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Attachments

Annotated Sheet Showing Changes

Approved
JC 3/23/04

Elements 105 + 143 added.

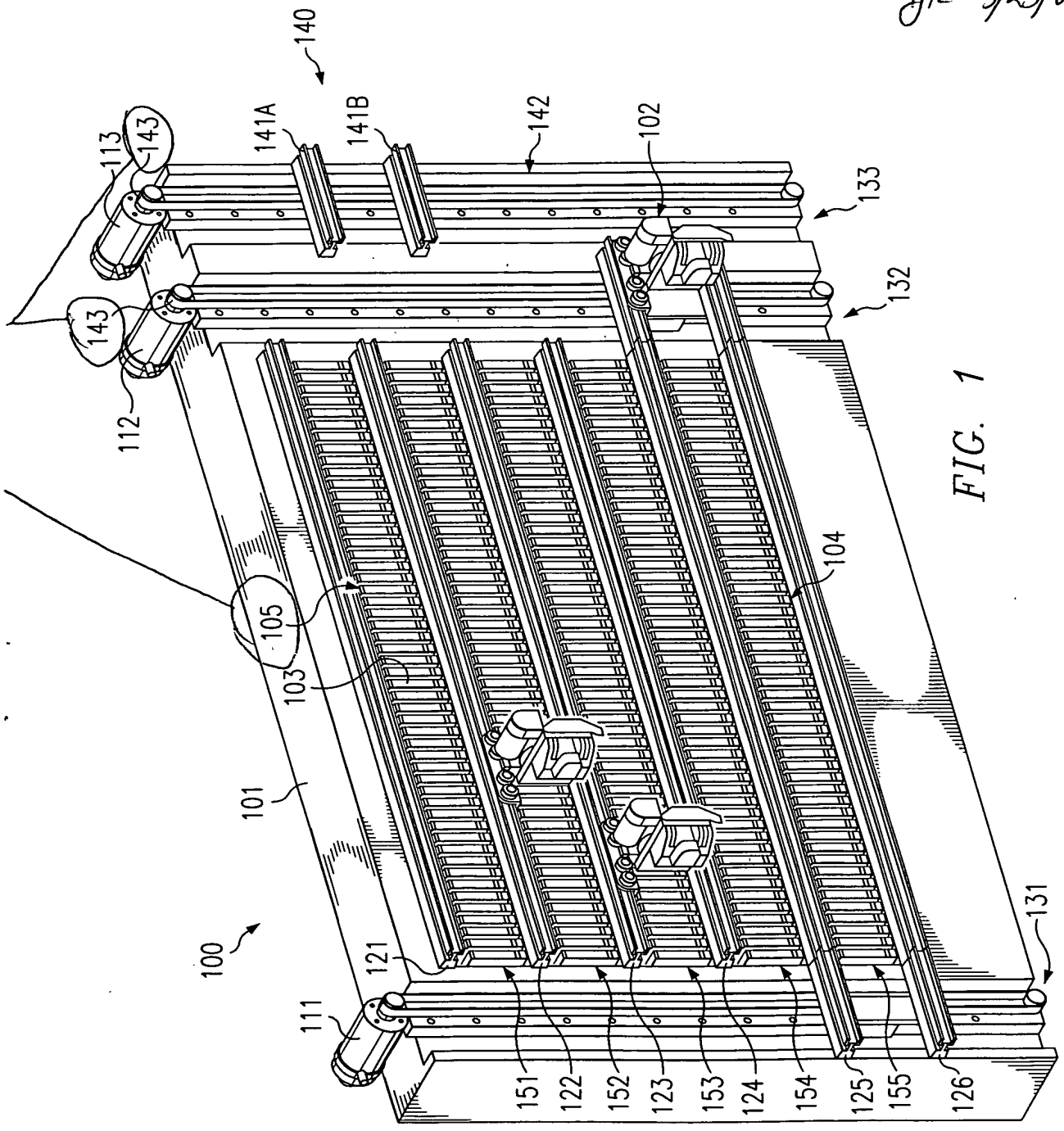

FIG. 1